Jewish Religious Scrolls

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Related Applications

The present application is a continuation of U.S Nonprovisional Application Serial No. 09/792,474 filed February 23, 2001 and claims the priority of U.S. Provisional Application Serial No. 60/184,258 filed February 23, 2000. The priority of both applications is claimed, and both applications are fully incorporated herein by reference.

Field of Invention

The present invention relates to Jewish religious ceremonial objects, namely religious scrolls known as Torahs, Megillahs, Mezuzzahs and Tefillin, and to methods of writing the same.

Background of the Invention

In Judaism, certain religious scrolls are holy or sacred and are regularly used in various ceremonies or in various religious practices. One such object is the Torah. In Jewish religious practice, the Torah is a specially prepared scroll containing the Hebrew text of the Five Books of Moses. This Torah scroll is handwritten on kosher parchment according to the strict dictates of a series of ancient laws and traditions extending back for thousands of years. At least one Torah scroll is maintained in every synagogue and is used each week during prayer services.

Another important religious scroll in Judaism is a Megillah. A Megillah, like the Torah, is also a religious scroll handwritten on kosher parchment. This scroll is used at certain times of the year for specific prayer services associated with specific religious events in the annual Jewish cycle of holidays and commemorations.

narrowing or widening a letter. Some letters require tilting parts of a letter so that the letter does not touch another letter that is above or below this letter.

With a font-based Hebrew alphabet, each letter is sharply defined and perfect. The font size can also be made to any size without losing detail and sharpness. Another advantage is that the Torah file is not an image file but rather is a text-based file. This dramatically minimizes the amount of computer memory needed to store the document. By way of example, one column of 42 lines in an image format that had been scanned requires 40 megabytes of memory whereas the same 42 lines as a text file only uses 120 kilobytes. Additionally, a text file allows a wider choice of text and line manipulation via software such as QUARK EXPRESS, to help in positioning of the letters and lines to conform to the *Sirtut.*

The effect of having multiple size letters also results in an aesthetically desirable appearance, wherein the scroll looks like it was hand written since all the lines do not look uniform.

In a sixth step of the invention, a series of horizontal grid lines (*Sirtut*) are created on a computer closely matching the desired spacing between lines.

In a seventh step of the invention, one or more physical dies are created. This physical die corresponds to the computerized grid lines and can be used to imprint a grid of indentations on a section of parchment.

In an eighth step of the invention, a test copy of paper is imprinted with the grid lines *(Sirtut)* for use in creating transparencies. These transparencies will later be used to create a template for the scrolls.

In a ninth step of the invention, the final version of the scanned image is printed out onto a first transparency and the first transparency is overlayed onto the test paper to determine whether the lines of text and the grid lines match up. (In most cases, they will not).

In a tenth step of the present invention, the first transparency is adjusted so as to align the lines of text and the grid lines. In the preferred embodiment, a new transparency is printed out with the computer to match the grid lines. Otherwise, the first transparency is cut into strips of text. These strips of text are carefully pasted onto a new (second) transparency such that each line of text hangs off of a grid line, as is required by the *Halakha.*

In an eleventh step of the present invention, this pasted transparency is used to make a new intact (third) transparency, and the third transparency is directly edited on the transparency itself to eliminate any potential problems in the letters of the text or their positioning.

In a twelfth step of the present invention, the third transparency is used to create a silk screen which will be an exact replica of the desired final scroll text.

In a thirteenth step of the present invention, a panel (preferably of PLEXIGLASS material) is prepared to match the size of a section of parchment.

In a fourteenth step of the present invention, a double sided adhesive tape is adhered to the PLEXIGLASS panel.

In a fifteenth step of the present invention, *Halakhically* suitable parchment is adhered to removable transfer tape and then adhered to the adhesive covered PLEXIGLASS, or the parchment is directly adhered to the covered PLEXIGLASS, taking care to smooth out all deformations or bubbles. (Such transfer tape is commonly used in sign-making shops to protect areas of the sign that are not to be painted on. The advantage of using transfer tape is that there is no permanent bonding to the parchment even after many days.)

In a sixteenth step of the present invention, the PLEXIGLASS is registered on an etching press table or using a proof press such as a No. 219 Vandercook Proof Press or a roller press and hand etched with a die to etch horizontal lines thereon.

In a seventeenth step of the present invention, the PLEXIGLASS is hand etched with a die to provide vertical lines thereon.

In an eighteenth step of the present invention, the parchment (with all of the *Sirtut* thereon) is registered on the silk screen table and is placed under a first screen for use in a silk screening process to print text onto the parchment.

In a nineteenth step of the present invention, the parchment is printed with UV or heat sensitive ink by pressing or forcing ink, by hand with a squeege, through the pores of the first screen. The use of a one-armed squeegee screen-printing device gives more control for printing a wider surface area, but still allows even and consistent printing to be done by only using the right hand which is one of the *Halakhic* requirements.

In a twentieth step of the present invention, the inked parchment is exposed to a UV or heat lamp, heating or illuminating it, to cure (i.e. harden) the ink thereon.

For scrolls which contain the name of G-d, the process of steps 18-20 is conducted at a first screen that does not contain the names of G-d thereon. The process is then repeated with a second screen for printing the names of G-d onto the scroll parchment along with the recitation of the appropriate words in a reverent state of mind.

In the twenty-first step of the present invention, the parchment is removed from the adhesive covered PLEXIGLASS. The process from Steps 15 to 21 is preferably conducted in less than one hour to prevent the adhesive from setting on the parchment when adhering the parchment directly onto the double stick adhesive.

The process of the present invention can be repeated as often as desired to create more than one scroll and/or to print parchment sections of a scroll which can be sewn together to create a full scroll (e.g. as with a Torah scroll).

heavier and perhaps more useful, for example, for permanent use in a relatively fixed location such as at a synagogue or an academy of study and learning known as a *Beit Midrash.*

Once the original scroll has been selected and the copy size determined, the original scroll must be scanned in accordance with the third step of the present invention. In this scanning step, the original is preferably scanned using the highest quality scanner available. As explained above, the need for an extremely high quality scan is paramount due to the importance attached to the perfection of each and every single letter in a religious scroll. For this purpose, a top of the line scanner must be utilized. For example, a SCANMATE scanner can be used. This scanner is an extremely expensive and high quality scanning device, costing $40,000 for example, compared to lower quality scanners at the other end of the spectrum running several hundreds of dollars, or even less than a hundred dollars in some cases). Thus, in the third step of the invention a high quality scanned image is obtained and saved as a computer file which will serve as a first draft.

In the fourth step of the present invention, the scanned image is enlarged or reduced as appropriate to match the desired copy size. Due to the fact that the original may be smaller or larger than the size desired for the final product, the scanned image may have to be enlarged or reduced to the degree appropriate.

In the fifth step of the present invention, the scanned image file must be edited. For example, the scanned image must be edited to remove from the computer file any and all specks, dust, or other imperfections that may have fallen onto the scroll or the scanner during scanning.

The scanned image must also be edited to fix the characteristics and/or positions of the letters. An important issue that should be addressed is the adjustment of letters that might later bleed or come too close during the later printing process. Although the letters might be separate in the original copy, it may be necessary to further increase the space between letters that could later

As one example of these requirements, the parchment material must be obtained from a kosher animal.

In accordance with the present invention, it is essential that a method be provided for laying the parchment completely flat, and be provided for keeping the parchment immovable in a fixed place from when the *Sirtut* are inscribed until when the printing is completed. Any shifting of the position of the parchment will interfere with the technique of the present invention since a shifting of the position of the letters could result. Likewise, if the parchment is not completely flat, the letters will also not be in their proper positions or will not be printed in the perfect shape. Maintaining the parchment completely flat, however, can be a considerable problem in view of the properties of the animal skin which it is derived from, since animal skins tend to bend and curl back to their natural state.

To accomplish the desired flattening, PLEXIGLASS or any other suitable stiff panels are prepared to match the size of the sections of parchment. These panels will serve as the base for the parchment.

In the preferred embodiment, each of these panels are covered with 3M 9249 double stick tape (tape with adhesive on both sides, also referred to herein as "double stick") or a tape which is similar thereto. It has been found that this particular tape possesses the properties necessary for use with the natural parchment material and accordingly this particular tape is preferred. The tape has sufficient adhesive strength to hold the natural parchment completely flat against the tendency of the parchment to reassume its natural shape. At the same time, this tape is not too strong, since a tape which is too strong may damage or tear the parchment when it is removed from the PLEXIGLASS, or may simply make it difficult to remove the completed scroll from the PLEXIGLASS material. For purposes of approximate illustration and comparison, it can be noted that this adhesive is stronger

than a "Post-It note" type adhesive, while not as strong as the permanent adhesives currently on the market. Another tape method is to use removable transfer tape (commonly used in sign making shops to protect areas of the sign that are not to be painted on). The advantage of using transfer tape is that there is no permanent bonding to the parchment even after many days.

Once the panel has been covered with the 3M tape or the parchment with the transfer tape, the parchment is affixed thereto. The parchment is laid flat on the panel, with care taken to avoid ripples or waves in the parchment. It is particularly important to smooth out any bubbles that may form between the parchment and the PLEXIGLASS material. Such bubbles will interfere with the printing process and will distort the appearance and shape of the letters of the scroll and/or their exact position.

When the parchment has been placed on the PLEXIGLASS and completely smoothened out, the PLEXIGLASS is then registered (i.e. firmly fixed in a specifically designated location, referred to herein as the first station) and inscribed with *Sirtut*. The PLEXIGLASS is designed to fit into a specific position at the first station so that all materials inscribed on or printed on the parchment are precisely aligned. In one embodiment, the PLEXIGLASS is preferably rectangular, and has two corners which fit against one or more pieces of wood at the first station, so that the PLEXIGLASS is fixed in the desired spot. The etching press having the die for the horizontal lines then descends onto the parchment to etch the necessary horizontal grid lines (in the form of ink-free indentations) into the parchment. As an alternative embodiment of the invention (for the horizontal and/or the vertical lines), the parchment can be placed upside down on the first station, with the metal bars forming grid lines being located underneath the parchment (e.g. as part of the first station or as a die inserted therein). When the press comes down on to the parchment, grid lines are etched. Preferably the etching of the *Sirtut* lines is done by hand, e.g. by turning a crank.

Care must be taken that the block or die be pressed against the parchment with sufficient force such that the die forms the *Sirtut* (grid lines) on the parchment, but not pressed down with enough force such that the parchment is cut. This process is repeated for each parchment section of the final Torah scroll. Thus, the use of this die (or multiple identical such dies) ensures that the identical *Sirtut* are imprinted on each section of the parchment every time.

After the first set of lines are formed, the PLEXIGLASS is moved to a second station, similar to the first station disclosed above. At the second station, the PLEXIGLASS is registered, and the vertical lines are etched onto the parchment using an etching press as described above.

The parchment now has all of the *Sirtut*, both horizontal and vertical, etched thereon. The parchment is therefore moved to the third station, which contains the screen.

At the third station, the parchment is registered so that it is aligned in accordance with the same alignment provided at the first and second stations. The screen having the first text of the scroll (i.e. the text without the names of G-d) is lowered onto the parchment. The ink for the printed letters is then squeezed, by hand, through the screen onto the parchment underneath. For example, a bar, a squeegee (particularly a one-armed squeegee), or another such tool can be used to force the ink, by hand, across the screen and through the screen's pores. In this manner, a handwritten copy of the scroll text is created under the screen.

In the preferred embodiment, the ink used for this process is ultraviolet (UV) ink such as NAZDAR 3600 shiny UV ink in black or ~~Sericol~~SERICOL UV ink Matte MM/Shiny MR, or heat sensitive ink such as a PLASTISOL ink. When most inks dry, the solvents in the ink evaporate causing spreading of the ink to occur. Ultraviolet or heat sensitive inks, in contrast, are more precise than traditional inks. Due to the fact that they do not have carriers or solvents which are evaporated off, they do not exhibit the same spreading or drying phenomenon. Instead, the UV or heat sensitive ink is cured

or

hardened using ultraviolet light or heat. By using these inks, undesirable spreading of any of the letters of the text is further prevented. As discussed above, the spreading of a single letter onto its neighbor will invalidate the entire scroll. Additionally, a much finer mesh screen such as a 385 or 420 can be used (the designation refers to the number of holes per square inch) as opposed to a 320 or less that is commonly used in traditional solvent based inks. The reason finer meshes cannot be used with solvent inks is because the smaller the holes the quicker the ink in those holes will dry up thereby ruining the screen after one or two times. Alternately, the UV inks will not dry until they are put through UV lamps. The finer mesh therefore allows for greater possible fine detail not possible with the coarser meshes.

When the UV or heat sensitive ink has been placed onto the scroll, the scroll is placed under UV light or a heat lamp to cure or harden the ink thereon. The scroll can then be taken to a fourth station where a screen is located containing the names of G-d for imprinting onto the scroll. At this station, a *Sofer* can recite the appropriate blessing and imprint the names of G-d onto the scroll with the proper intentions and in an attitude of reverence suitable for the extreme holiness of the scroll and the inscription of a reference to G-d thereon. After the blessing is recited, the *Sofer* can then write the names of G-d onto the parchment by pressing the ink through the screen.

Once the ink is cured from this second writing, the entire text of the scroll has been completely written thereon. The finished parchment is then unrolled from the 3M tape. Preferably, the steps from placement of the parchment onto the adhesive-covered PLEXIGLASS until the removal of the parchment therefrom are conducted in less than one hour so that the adhesive will not have time to set on the parchment unless the transfer type method has been used.

This finished scroll has the full religious text handwritten thereon and retains the quality of the original handwritten scroll used as a model. In fact, the quality of the scroll is such that even

In a further embodiment of this method, more than one scroll can be printed at a time. For example, a single parchment is generally large enough to make approximately eight (8) Tefillin scrolls therefrom. Using this large parchment, all eight (8) scrolls could be printed on that single piece of parchment at the same time.

To accomplish this, one large screen suitable of containing all eight scrolls is made with the lines spaced two to four inches apart. The multiple first lines are un-taped (i.e. uncovered for the passage of ink therethrough) and are placed over this parchment. As the squeegee is moved across the parchment, the first line of each of the eight scrolls is being printed at the same time. (The letters of the first line of each scroll are also being printed in sequence). The next line is then un-taped and the previous line is taped. Before the next line can be printed, the line must be registered to match the next scored grid line. In this situation, because each line is being printed separately, the line images on the screen do not match the scored parchment. In order to assure accurate placement on each line without ruining the parchment (which is expensive) a clear flat sheet of plastic like MYLAR material is placed and taped on top of the parchment. The screen is lowered and the squeegee is passed, printing on the MYLAR. After lifting the screen, a visual check is performed to determine whether the line just printed registers with the scored line. If it does not, the parchment is reregistered by moving the PLEXIGLASS board so that the scored line is in proper position with the line that is printed on the MYLAR sheet. The line printed on the MYLAR sheet is wiped clean (the ink has not cured yet and can be easily wiped off of the MYLAR) and the test print is conducted again to make sure that the adjustment is accurate. If the adjustment is not accurate, this process is repeated until everything lines up perfectly. Then, the MYLAR sheet is removed and printing is done directly on the parchment which should print right on the scored line exactly. The process is repeated with each of the screens of the Tefillin scroll (or alternatively, of the Mezuzzah scroll). Once the full eight scrolls